Spreadsheet Engineering

A Paradigm for Methodologies

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Our Paradigm: *9 elements*

1. **Modeling:** What to do?
2. **Development Parameters:** How to do it?
3. **Design:** Structure and Look
4. **Programming:** How to create the formulas?
5. **Quality Control:** How to verify & validate
6. **Debugging:** How to handle errors?
7. **Documentation:** How to communicate?
8. **Usage:** How to use/distribute?
9. **Modification:** How to update?

Outline

- Big Picture: Why are we doing this?
- Existing Spreadsheet Engineering Methodologies (SEM)
- Tunnel Vision
- What's a "Paradigm"??!
- A structure for SEM
- Conclusion / Discussion

Big Picture

- Errors are getting no traction

- We need a compelling **Value Proposition**
  - It is *NOT* "error prevention"
    at some other time we can discuss why!

Value Propositions

- Value Proposition = *Benefits* of changing what you are currently doing.

- Don't Sell Problems
  - People don't buy them

- Sell Solutions…

Spreadsheet Engineering Methodologies (SEM)

- Publicly Available
  - Chadwick et al
  - Raffensperger
  - Powell and Baker
  - PWC / IBM
  - ECDL
- Private
  - Operis
  - Primary Matters
  - Brattle
  - ChevronTexaco
  - A slightly dim undergraduate
  - …ad infinitum
  - …ad nauseum

Diversity of Methodologies

- The Methodologies are all different!
- What's the poor user to do?
  - How to choose?
  - Depends on "Domain"

Domain

- Domain = "Class" of spreadsheet
  - Incredible diversity that we don't understand
- Within a domain, life is simple
- Across domains, things get complicated
- Existing SEM's have unstated domain assumptions

How Did This Happen?
"Tunnel Vision"

- People use spreadsheets
  - for a different reason
  - in a different way
- People seem to think

spreadsheets = | what we and our friends use them for…

Need a Domain-Free Structure

- For existing methodologies:
  - Compare
  - Critically evaluate
  - Determine completeness
- For new methodologies
  - What must be considered?
  - What do we choose to ignore?
    - Surfaces assumptions about what is deemed unimportant

A Paradigm for Spreadsheet Engineering Methodologies

paradigm

A set of assumptions, concepts, values, and practices

that constitutes a way of viewing reality for the community that shares them

Our Paradigm: *9 elements*

1. **Modeling:** DOMAIN What to do?
2. **Development Parameters:** How to do it?
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Benefits of the Approach

- Help codify the current set of practices spreadsheet users follow

- Provide a means to compare/contrast recommendations

- Help structure domain specific recommendations

Next Steps

- Apply this paradigm to all recommendations and methodologies for spreadsheet engineering

- Any complete methodology should address all these 9 elements
  - including a conscious or unconscious choice not to address some of them.

Conclusion and Discussion

- Is the paradigm complete?
  - Time will tell…
- A need for
  - observing current practices
  - identifying local best practices
  - understanding differences between practices

- Spreadsheet research will become a mature field w/ direct relevance in business!